Tom Lyon

THE

C

PROGRAMMING

LANGUAGE

Brian W. Kernighan

Dennis M. Ritchie

Bell Telephone Laboratories, Incorporated
Murray Hill, New Jersey

DRAFT VERSION 1.
Comments on this book are solicited.

C is a general-purpose programming language which features economy of expression, modern control flow and data structures, and a rich set of operators. C is not a 'very high level' language, nor a 'big' one and is not specialized to any particular area of application. But its absence of restrictions and its generality make it more convenient and effective for many tasks than supposedly more powerful languages.

This book aims to teach how to program in C. Most of the treatment is based on reading, writing and revising examples, rather than on bald statements of rules. For the most part, the examples are complete, real programs, rather than artificial ones, although they are of necessity not very big. Besides howing how to make effective use of the language, we have also tried where possible to show useful algorithms and principles of good style and sound design.

The book is not an introductory programming manual; it assumes some familiarity with basic programming concepts like variables, assignment statements, loops, and subroutines. Nonetheless, an absolutely novice programmer should be able to read along and pick up the language, although access to a more knowledgeable colleague will help.

C was originally designed for and implemented on the UNIX operating system on the DEC PDP-11; the operating system, the compiler, and essentially all UNIX applications programs are written in C. Production compilers also exist for the IBM System/370, the Honeywell 6000, and the Interdata 8-32, with preliminary versions on several other machines. C is not tied to any particular system and it is readily possible to write portable C programs.

Since C is an evolving language that exists on a variety of systems, some of the material in this book may be incorrect for a particular system. We have tried to steer clear of such problems, and to warn of the inevitable difficulties. When in doubt, however, we have generally chosen to describe the situation on UNIX, since that is the environment of the majority of C programmers.

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